balloon, the perfusion lumen decreasing distally in cross section within the inflatable envelope portion.

10. A balloon angioplasty catheter comprising:

an elongated catheter body;

a balloon;

a perfusion lumen extending through the balloon, the perfusion lumen having a distal end and a proximal end;

a guidewire lumen, the guidewire lumen being disposed through the perfusion lumen and being collapsible, during normal use, in the absence of an inserted guidewire.

Remarks

Applicants have carefully reviewed the office action dated April 7, 1997. Applicants have amended Claims 4 and 10 herein. Claims 1-12 remain pending in the application.

Claims 1-3 were rejected under 35 U.S.C. §102 as being anticipated by Miraki et al. Miraki et al. disclose a perfusion balloon catheter having a perfusion lumen extending across a balloon and being disposed outside of the balloon.

Unlike Miraki et al., Applicants' invention, as recited in Claim 1, includes a perfusion lumen extending through the balloon. This arrangement is not provided for by Miraki et al. Thus, instead of providing a circumferential surface around the balloon incident to the vessel, Miraki et al. presents a discontinuous

surface. By extending the perfusion lumen through the balloon, Applicants provide a balloon surface in non-discontinuous, circumferential contact with the wall, thus providing circumferential support to the lesion during dilatation.

In view of the foregoing, Applicants respectfully submit that Claim 1 is not anticipated by Miraki et al. As Claims 2-3 depend from Claim 1, Applicants submit that Claims 2-3 are likewise not anticipated by Miraki et al.

Claims 4-5 were rejected under 35 U.S.C. §102(b) as being anticipated by Saab. Saab discloses a dilatation catheter. The dilatation catheter includes a balloon and a tube defining a lumen extending through the balloon. The tube appears to decrease in diameter in a distal direction as it extends through the lumen. Applicants are unsure of the purpose of the tube, which apparently extends the length of the catheter.

Applicants' invention, as recited in Claim 4, differs from the catheter disclosed by Saab in that the perfusion lumen extending through the balloon has a proximal end proximate the proximal end of the balloon. As Applicants are unsure of what the purpose of the lumen extending through the balloon disclosed by Saab is, Applicants will merely note here that it is not of a type recited in Claim 4 having a proximal opening proximate the proximal end of the balloon.

In view of the foregoing, Applicants respectfully submit that Claim 4 is not anticipated by Saab. As Claim 5 depends from Claim 4, Applicants submit that Claim 5 is also in condition for

allowance. Claim 6 which depends from Claim 4 has been indicated as allowable.

It would appear from paragraph 4 of the office action, that Claims 10-12 are rejected as being anticipated by Crocker or, alternately, by Cox. Neither Crocker nor Cox disclose a guidewire lumen extending through a perfusion lumen wherein the guidewire lumen is collapsible during normal use. Applicants' invention, as recited in amended Claim 10, discloses such a guidewire lumen. The advantage of the collapsible guidewire lumen extending through a perfusion lumen is readily apparent. Specifically, the collapsing guidewire lumen increases the cross sectional area of the perfusion lumen during blood perfusion.

In view of the foregoing, Applicants respectfully submit that Claim 10 is in condition for allowance. As Claims 11 and 12 depend from Claim 10, Applicants respectfully submit that Claims 11 and 12 are likewise in condition for allowance.

Claims 7-9 are indicated as allowed.

Reexamination and reconsideration are respectfully requested. It is respectfully submitted that the claims are now in condition for allowance, issuance of a Notice of Allowance in due course is

requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 331-1464.

Respectfully submitted,

JAMES E. COX ET AL.

By their Attorney,

Date: June 9, 1997

Glenn M. Seager Reg. No. 36,926
NAWROCKI, ROONEY & SIVERTSON, P.A.
Suite 401, Broadway Place East
3433 Broadway Street Northeast
Minneapolis, Minnesota 55413-3009
Tel: (612) 331-1464